
Autodesk® PowerInspect® 2018

What's New



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New features

PowerInspect 2018 contains new features and enhancements in the following areas:

- **User interface** (see page 2)
- **Verification and collision-checking** (see page 14)
- **Alignments** (see page 16)
- **Tolerances** (see page 21)
- **Geometric item points** (see page 24)
- **Digitized curves** (see page 27)
- **Point-cloud features** (see page 30)

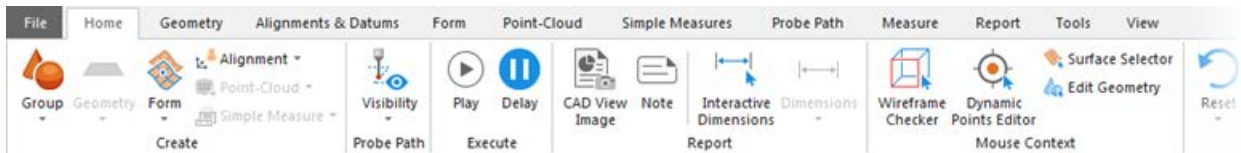
User interface

PowerInspect 2018 has the following improvements to the user interface:

- Ribbon interface (see page 3)
- Background colour (see page 11)
- Expanding tooltips (see page 12)
- Dockable dialogs (see page 13)

Ribbon interface

The toolbars and menu options have been replaced with a ribbon to give PowerInspect a clear visual layout and provide consistency with other Autodesk products. The ribbon comprises several tabs, each of which represents a subset of program functionality. The tabs contain panels of related commands.



To minimize the ribbon, click the Minimize  button at the top-right of the screen. The tab names remain displayed when the ribbon is minimized. Click a tab name to display the ribbon. To maximize the ribbon, click the Maximize  button at the top-right of the screen.

Tabs

Select a tab to activate it and display the buttons on that tab:

- File — Use this tab to display the Backstage view.
- Home — Use this tab to access the most commonly used buttons from other tabs on the ribbon.
- Geometry — Use this tab to measure geometric items.
- Alignments & Datums — Use this tab to add alignment and datum items to the Sequence Tree.
- Form — Use this tab to measure surfaces, edges, and sections.
- Point-Cloud — Use this tab to work with point-cloud items.
- Simple Measures — Use this tab to quickly measure distances between two features, and align the CAD to the part.
- Probe Path — Use this tab to manage probe paths.
- Measure — Use this tab to manage measures.
- Report — Use this tab to manage reports.
- Tools — Use this tab to access tools.
- View — Use this tab to control the display of information in the Graphics window.

Quick Access Toolbar

A Quick Access Toolbar is displayed at the top-left of the screen, above the ribbon. Use it to quickly perform standard functions such as Open and Save.



To show or hide options on the Quick Access Toolbar, click the down arrow button and select the options that you want to show. Deselect options that you want to hide.

View toolbar

A View toolbar is displayed vertically, to the right of the Graphics window. Use it to quickly access the most commonly used View buttons.



The toolbar is docked by default. To float it, click the down arrow button and select **Floating**. To re-dock the toolbar, double-click the grey area at the top of it.

Help menu

The Help menu is still available, to access it, click the **Help** ? icon at the top-right of the screen.

Where is my command?

Use this list to locate commands in the new ribbon interface.

Previous menu location	New ribbon location
File > New Document	File tab > New > New Document
File > New Document Wizard	File tab > New > New Document Wizard
File > Open	File tab > Open
File > Close	File tab > Close
File > Save	File tab > Save
File > Save As	File tab > Save As
File > Export > Export As CAD	File tab > Export > Export as CAD
File > Export > Active Alignment	File tab > Export > Active Alignment
File > Export > Report	File tab > Export > Report
File > Page Setup	File tab > Print > Page Setup
File > Print	File tab > Print > Print
File > Print Preview	File tab > Print > Print Preview
File > Printer Setup	File tab > Print > Printer Setup
File > Recent Files	File tab > Recent
File > Exit	File tab > Exit
Edit > Cut	Home tab > Edit panel > Cut
Edit > Copy	Home tab > Edit panel > Copy
Edit > Copy as Points	Home tab > Edit panel > Copy as Points
Edit > Paste as Point Cloud	Home tab > Edit panel > Paste > Paste as Point-Cloud
Edit > Paste	Home tab > Edit panel > Paste > Paste
Edit > Delete	Home tab > Edit panel > Delete
Edit > Delete All	Dynamic Points tab > Edit panel > Delete > Delete All
Edit > Language	File tab > Options > Language
View > Resize to Fit	View tab > Navigation panel > Resize

	to Fit
View > From > Top (Z)	View tab > Views panel > From > Top (Z)
View > From > Front (-Y)	View tab > Views panel > From > Front (-Y)
View > From > Right (X)	View tab > Views panel > From > Right (X)
View > From > Bottom (-Z)	View tab > Views panel > From > Bottom (-Z)
View > From > Back (Y)	View tab > Views panel > From > Back (Y)
View > From > Left (-X)	View tab > Views panel > From > Left (-X)
View > ISO > Isometric 1	View tab > Views panel > ISO > ISO 1
View > ISO > Isometric 2	View tab > Views panel > ISO > ISO 2
View > ISO > Isometric 3	View tab > Views panel > ISO > ISO 3
View > ISO > Isometric 4	View tab > Views panel > ISO > ISO 4
View > ISO > Axonometric	View tab > Views panel > ISO > Axonometric
View > Custom View > Custom View #1	View tab > Views panel > User > User View 1
View > Custom View > Custom View #2	View tab > Views panel > User > User View 2
View > Custom View > Custom View #3	View tab > Views panel > User > User View 3
View > Custom View > Custom View #4	View tab > Views panel > User > User View 4
View > Custom View > Save Custom View #1	View tab > Views panel > User > Save User View 1
View > Custom View > Save Custom View #2	View tab > Views panel > User > Save User View 2
View > Custom View > Save Custom View #3	View tab > Views panel > User > Save User View 3
View > Custom View > Save	View tab > Views panel > User >

Custom View #4	Save User View 4
View > Rotation Anchor > View	View tab > View Options panel > Rotation Anchor > View
View > Rotation Anchor > Visible View	View tab > View Options panel > Rotation Anchor > Visible View
View > Rotation Anchor > Origin	View tab > View Options panel > Rotation Anchor > Origin
View > Rotation Anchor > Selected Point	View tab > View Options panel > Rotation Anchor > Selected Point
View > Probe Paths > Show Selected	View tab > View Options panel > Probe Paths > Show Selected Probe Path
View > Probe Paths > Show Visible	View tab > View Options panel > Probe Paths > Show Visible Probe Paths
View > Probe Paths > Show All	View tab > View Options panel > Probe Paths > Show All Probe Paths
View > Probe Paths > Hide	<i>Deselect all of the Show options.</i>
View > Show Grid	View tab > View Options panel > Grid Mode
View > Grid Mode > Part Coordinates	View tab > View Options panel > Grid Mode > Part Coordinates
View > Grid Mode > Datum Coordinates	View tab > View Options panel > Grid Mode > Datum Coordinates
View > Grid Mode > Machine Coordinates	View tab > View Options panel > Grid Mode > Machine Coordinates
View > Grid Mode > Common Machine Coordinates	View tab > View Options panel > Grid Mode > Common Machine Coordinates
View > Grid Mode > Probe Tool Coordinates	View tab > View Options panel > Grid Mode > Probe Tool Coordinates
View > Grid Mode > World Coordinates	View tab > View Options panel > Grid Mode > World Coordinates
View > Grid Mode > Local Quill Coordinates	View tab > View Options panel > Grid Mode > Local Quill Coordinates
View > Grid Mode > Local Probe Coordinates	View tab > View Options panel > Grid Mode > Local Probe Coordinates
View > Grid Mode > Local Probe Tool Coordinates	View tab > View Options panel > Grid Mode > Local Probe Tool

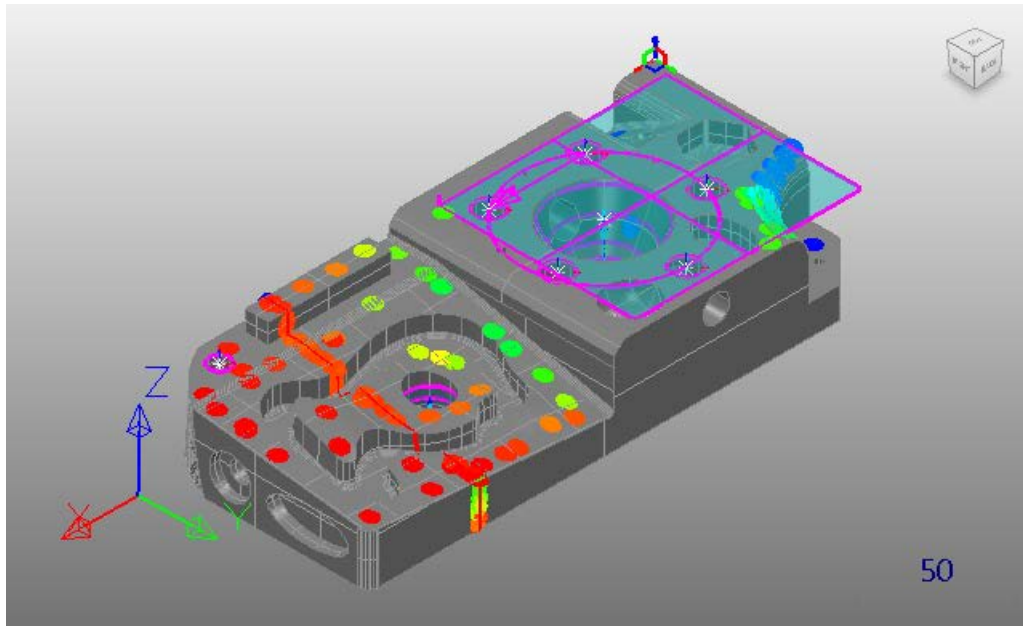
	Coordinates
View > Grid Mode > Local Probe Orientation PCS	View tab > View Options panel > Grid Mode > Local Probe Orientation PCS
View > Grid Mode > Local Probe Orientation WCS	View tab > View Options panel > Grid Mode > Local Probe Orientation WCS
View > Level > Selection	View tab > Appearance panel > Visible Levels
View > Level > Manager	<i>In Surface Selector mode, right-click the CAD View and select Group Surfaces.</i>
Measures > Play Item	Measure tab > Manual panel > Play Item
Measures > Play with Resume	Measure tab > Manual panel > Resume Measure
Measures > Play All	Measure tab > Manual panel > Play All
Measures > Reset All	Measure tab > Edit panel > Reset > Reset All
Measures > Reset Item	Measure tab > Edit panel > Reset > Reset
Measures > Delay Inspection	Measure tab > Manual panel > Delay Measure
Measures > Generate Probe Paths	Probe Path tab > Tools panel > Generate Probe Paths
Measures > New Measure	Measure tab > Current panel > New
Measures > Edit Measure	Measure tab > Edit panel > Edit
Measures > Delete Measures	Measure tab > Edit panel > Delete
Measures > Parameters	Measure tab > Current panel > Parameters
Measures > CAD Levels for Inspection	Measure tab > Options panel > Active Levels
Measures > Import Measured Data	Measure tab > Edit panel > Import
Measures > Transform Nominals	Tools tab > Transform panel > Transform Nominals
Tools > Machine Connection > Connection	Tools tab > Machine panel > Connect

Tools > Machine Connection > Tracking	Tools tab > Machine panel > Track
Tools > Machine Connection > PowerInspect DRO	Tools tab > Machine panel > DRO
Tools > Machine Connection > Home	Tools tab > Machine panel > Home
Tools > Machine Connection > Configure	Tools tab > Machine panel > Configure
Tools > Machine Connection > Edit Probe Database	Tools tab > Machine panel > Probes
Tools > Machine Connection > Synchronise Probe Databases	<i>When the document is connected using the I++ Server protocol, click Synchronise Probe Databases in the Machine tab toolbar.</i>
Tools > Document Connection	Tools tab > Connection panel > Attach
Tools > Mirror Wizard	Tools tab > Transform panel > Mirror Wizard
Tools > Dynamic Points	Home tab > Mouse Context panel > Dynamic Points Editor
Tools > Import Points > Create Surface Inspection Group	Form tab > Points panel > Import > Create CNC Surface Group
Tools > Import Points > Create Edge Inspection Group	Form tab > Points panel > Import > Create CNC Edge Group
Tools > Import Points > Create Probed Single Points	Geometry tab > Points panel > Import > Probed Single Points
Tools > Import Points > Create Point Cloud Single Points	Geometry tab > Points panel > Import > Point-Cloud Single Points
Tools > Point Cloud > Project Selected Points	Point-Cloud tab > Project panel > Selected Points
Tools > Point Cloud > Project Point Cloud	Point-Cloud tab > Project panel > Point-Cloud
Tools > Point Cloud > Unproject Selected Points	Point-Cloud tab > Project panel > Unproject
Tools > Point Cloud > Sort Points	<i>Click column titles in Graphics window Point-Cloud tab.</i>
Tools > Point Cloud > Export Point Cloud	Point-Cloud tab > Export panel > Point-Cloud

Tools > Point Cloud > Export Points	Point-Cloud tab > Export panel > Points
Tools > Point Cloud > Evaluate Item From File	Point-Cloud tab > Items panel > From File
Tools > Point Cloud > Filter Point Cloud	Point-Cloud tab > Edit panel > Filter
Tools > Point Cloud > Triangulate Point Cloud	Point-Cloud tab > Triangulate panel > Create
Tools > Point Cloud > Register Point Cloud	Point-Cloud tab > Edit panel > Register
Tools > Add-In Manager	File tab > Options > Add-In Manager
Tools > Macro Manager	Tools tab > Macro panel > Manager
Tools > Autodesk A360	Home tab > Autodesk panel > A360
Tools > Options	File tab > Options > Application Options
Window > New Window	View tab > Window panel > New
Window > Cascade	View tab > Window panel > Arrange & Switch > Cascade
Window > Tile Horizontally	View tab > Window panel > Arrange & Switch > Tile Horizontally
Window > Tile Vertically	View tab > Window panel > Arrange & Switch > Tile Vertically
Window > Rearrange Icons	View tab > Window panel > Arrange & Switch > Arrange
Window > List of Open Windows	View tab > Window panel > Arrange & Switch > Windows

Background colour

PowerInspect 2018 has a new default background colour, which gives consistency across related Autodesk products.



To view and edit default colours:

- 1 Open a document in PowerInspect.
- 2 Click File tab > Options > Application Options.
- 3 In the **Options** dialog tree, use the sub-pages under Display Options > Colours.

Expanding tooltips

The ribbon interface has expanding tooltips. Hover your mouse over a button to display help as a tooltip.

Geometric Group

Inserts a Geometric Group into the Sequence Tree and opens it.

[Press F1 for more help](#)

Where more tooltip help is available, the tooltip expands after a few seconds to show more information.

Geometric Group

Inserts a Geometric Group into the Sequence Tree and opens it.

Use a Geometric Group to contain and organize geometric items in the Sequence Tree.

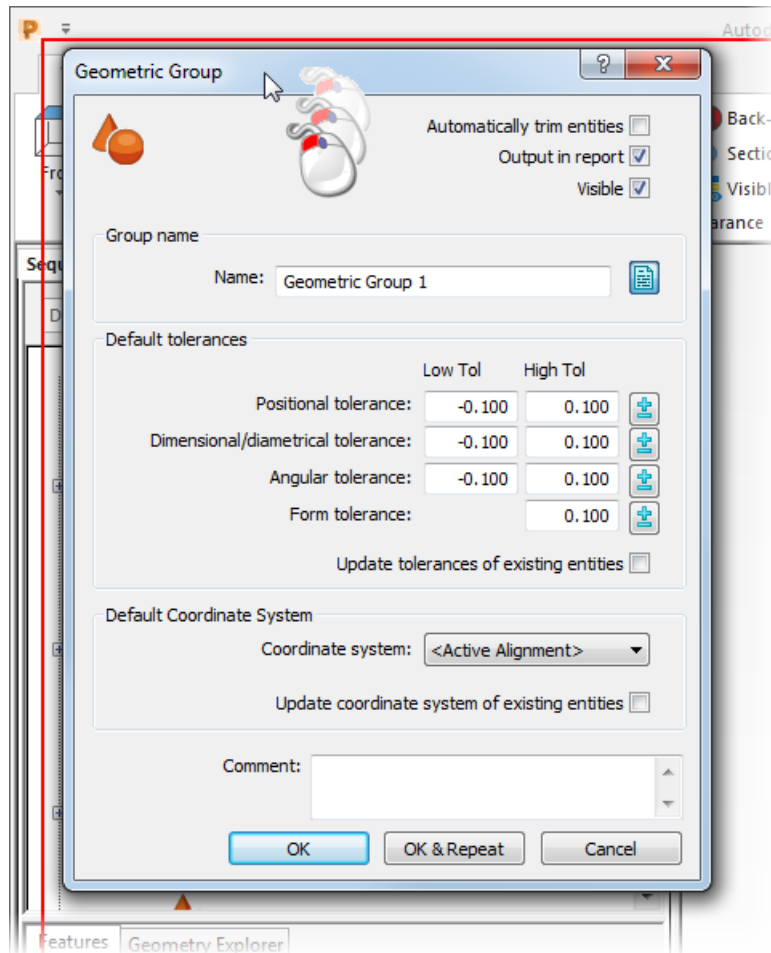
[Press F1 for more help](#)

Press **F1** to open the reference help at the correct page for the command.

Dockable dialogs

In PowerInspect 2018, you can dock the Modify Item dialogs to an edge of the PowerInspect window or your screen.

Drag the dialog to the edge or corner where you want to dock it. A red line is displayed when the dialog is in a location that you can drop it.



When you close the dialog, the same position is used for each subsequent use of the Modify Item dialogs.

Verification

PowerInspect 2018 has the following improvements to verification:

- Invalid tool check during full-screen measurement (see page 15)

Invalid tool check during full-screen measurement

If you edit the probe database during manual probing and select an invalid tool, a warning is displayed immediately, at the bottom of the **Feature probing** dialog:

Current probe is invalid

If you ignore the warning and close the **Machine Configuration** dialog, a message box is displayed:

Measurement cannot continue with invalid tool.

Click Select to choose a different tool, or Stop to cancel the next measurement.



*If you click **Stop**, all measured points are preserved.*

Alignments

PowerInspect 2018 has the following improvements to alignments:

- Setting alignment options (see page 17)
- New Best Fit fitting type (see page 18)
- Initial transformation for alignments (see page 19)
- Geometric PLP alignment error messages (see page 20)
- RPS alignment constraints error message (see page 20)

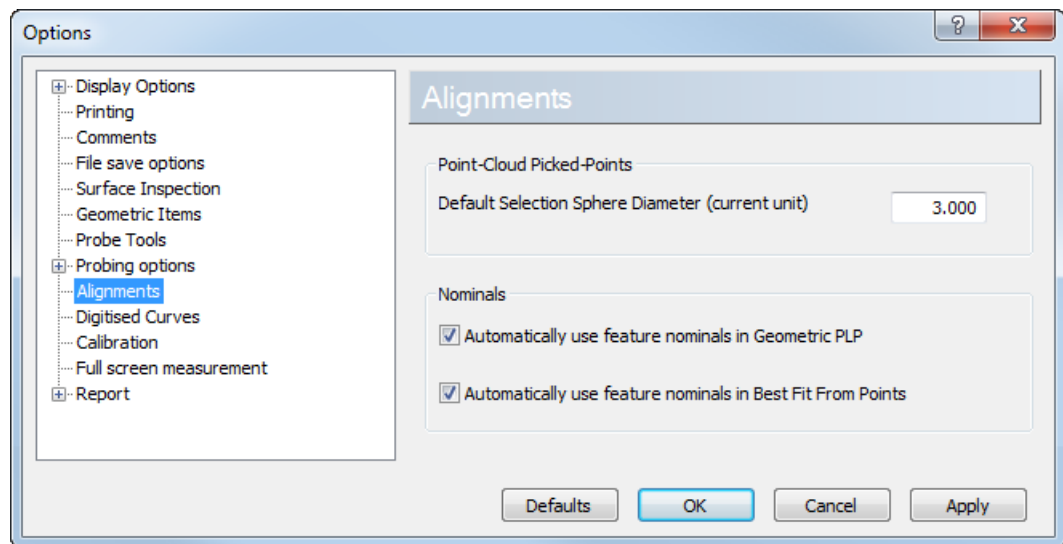
Setting alignment options

There is a new page in the **Options** dialog. Use the **Alignments** page to set alignment options.



*The **Alignment Nominals** page has been removed and its options moved to the **Alignments** page, in the **Nominals** section.*

To open the **Options** dialog in PowerInspect 2018, click File tab > Options > Application Options.

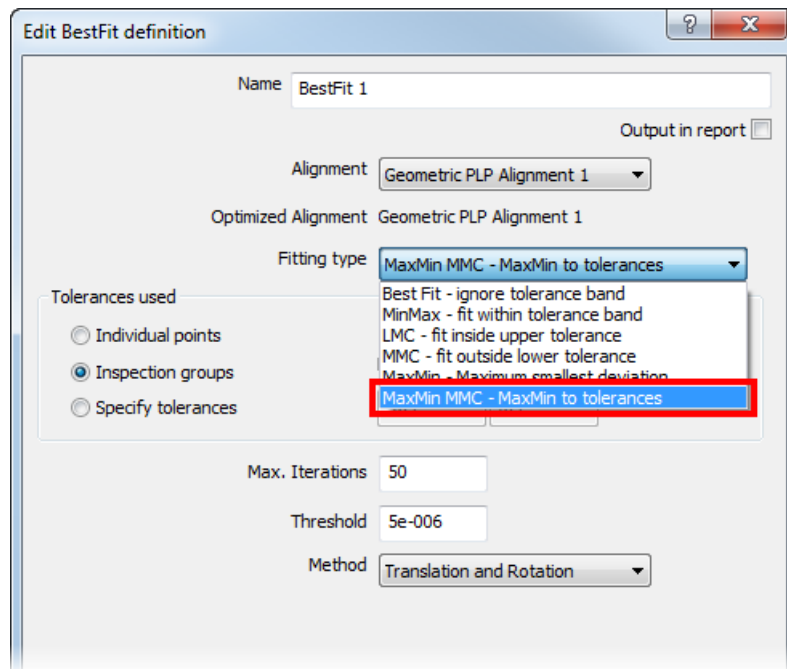


This page contains a new option, in the **Point-Cloud Picked-Points** section:

Default Selection Sphere Diameter — Enter the default value of the diameter of the selection sphere used for a point-cloud picked-points alignment. The current units of the topmost document are used.

New Best Fit fitting type

There is a new **Fitting type** for the **Best Fit** alignment.



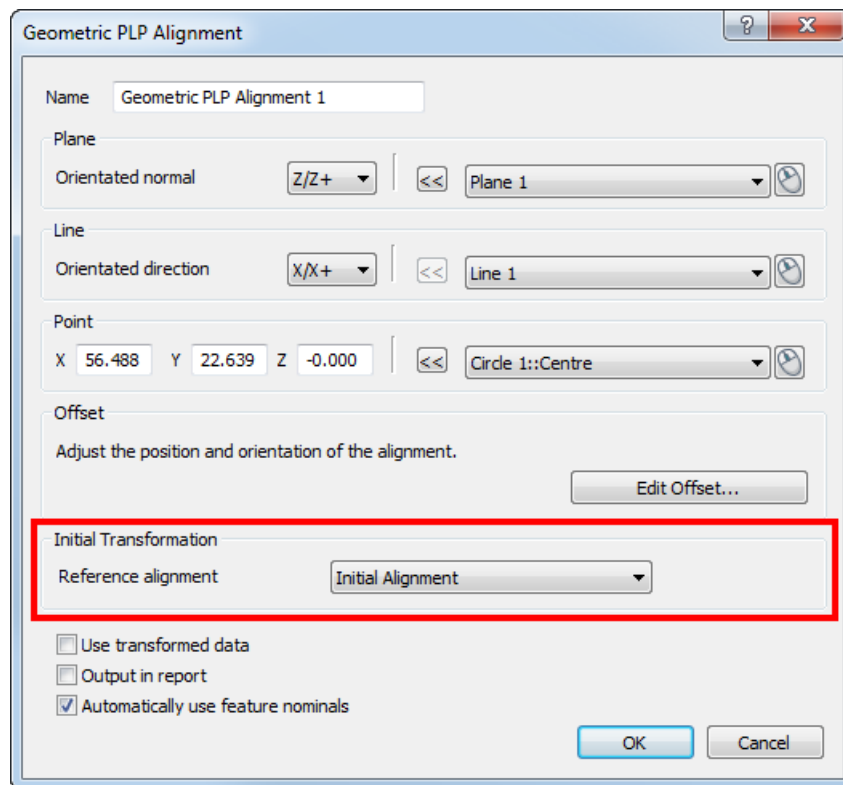
MaxMin MMC is similar to MaxMin, but it takes into account tolerances so that it finds the maximum smallest deviation past tolerances, not just from the CAD.

Initial transformation for alignments

In PowerInspect 2018, you can specify the reference alignment used for the initial CMM to CAD transformation for these alignment types:

- RPS
- Geometric PLP
- Best Fit From Points

For example:



This enables you to reference features from some types of item that caused a circular dependency error in PowerInspect 2017.

Geometric PLP alignment errors

There are two improvements to Geometric PLP alignment errors

Modifying a referenced item

If you change an item that is used in a Geometric PLP alignment, the alignment calculation can become invalid. In this situation, a warning is now displayed.

Referencing an item already in use

The circular dependency error has been reworded for clarification. The error is displayed if you try to reference an item that is already referenced elsewhere. It now reads, for example:

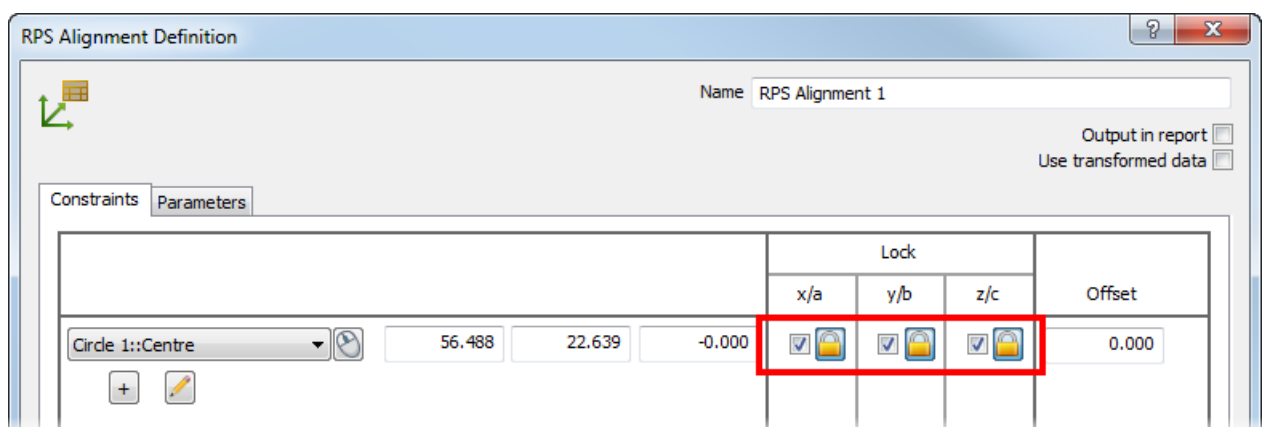
Point nearest to/furthest from an axis 1 causes circular dependency.



Due to the new Initial Transformation (see page 19) setting, this error is rare.

RPS alignment constraints error message

An error message is now displayed if you try to create an RPS alignment without locking at least one axis for each selected feature that has configurable locks. To lock axes for the selected feature, select the check boxes in the **Lock** columns: **x/a**, **y/b**, or **z/c**.



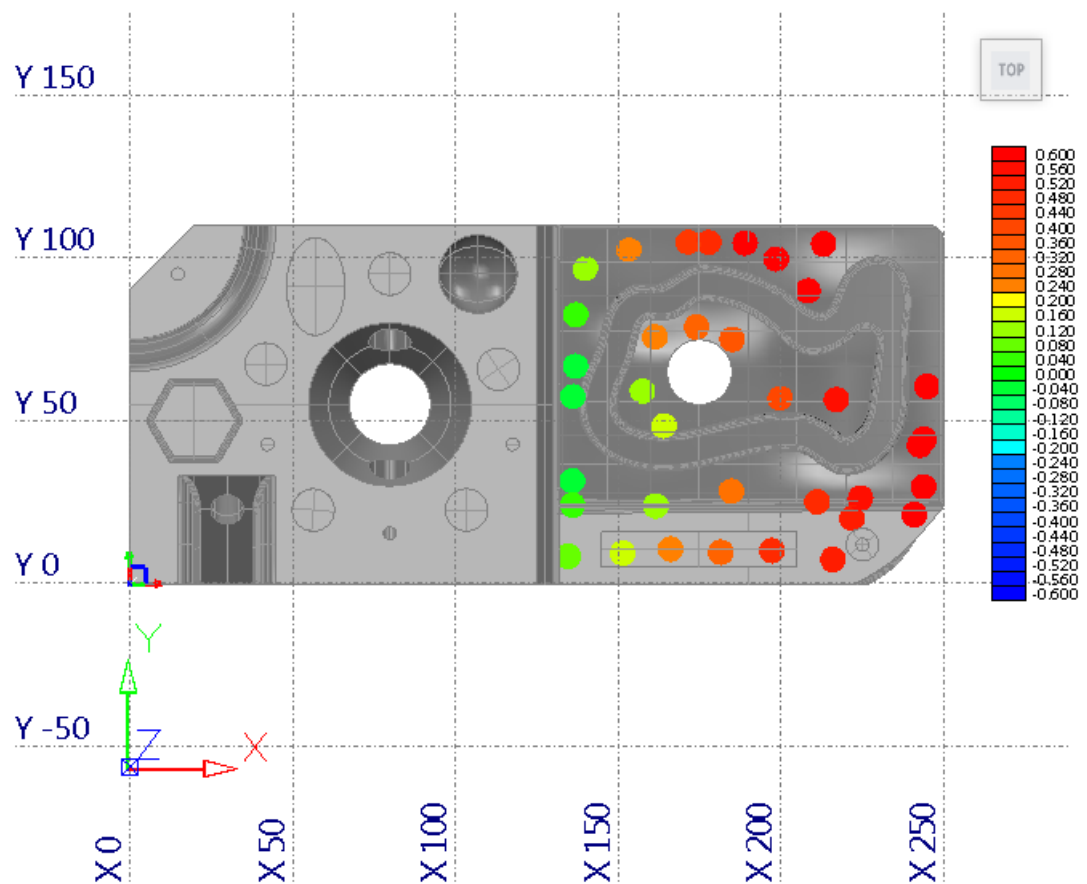
Tolerances

PowerInspect 2018 has the following improvements to tolerances:

- Viewing the tolerance scale (see page 22)
- Viewing tolerances in CAD View labels (see page 23)

Viewing the tolerance scale

In the **CAD View**, the tolerance scale is now displayed on the right, below the ViewCube, to avoid overlap with the coordinate axis labels. The tolerance scale and coordinate axis labels are now easier to read in the CAD View and in reports using CAD View components.



To display the tolerance scale, select **Draw coloured tolerance scale** on the **Display Options** page of the **Options** dialog.

Viewing tolerances in CAD View labels

In PowerInspect 2018, the tolerance columns are now displayed in the order: **Low tol** then **Hi tol**. For example:

Circle 1	Low tol:	Hi tol:	Act:	Dev:
Dia:	-0.100	0.100	13.037	0.035
X:	-0.100	0.100	56.488	0.000
Y:	-0.100	0.100	22.639	0.000
Z:	-0.100	0.100	0.000	0.000

This is consistent with the order this information is displayed in other parts of the interface.

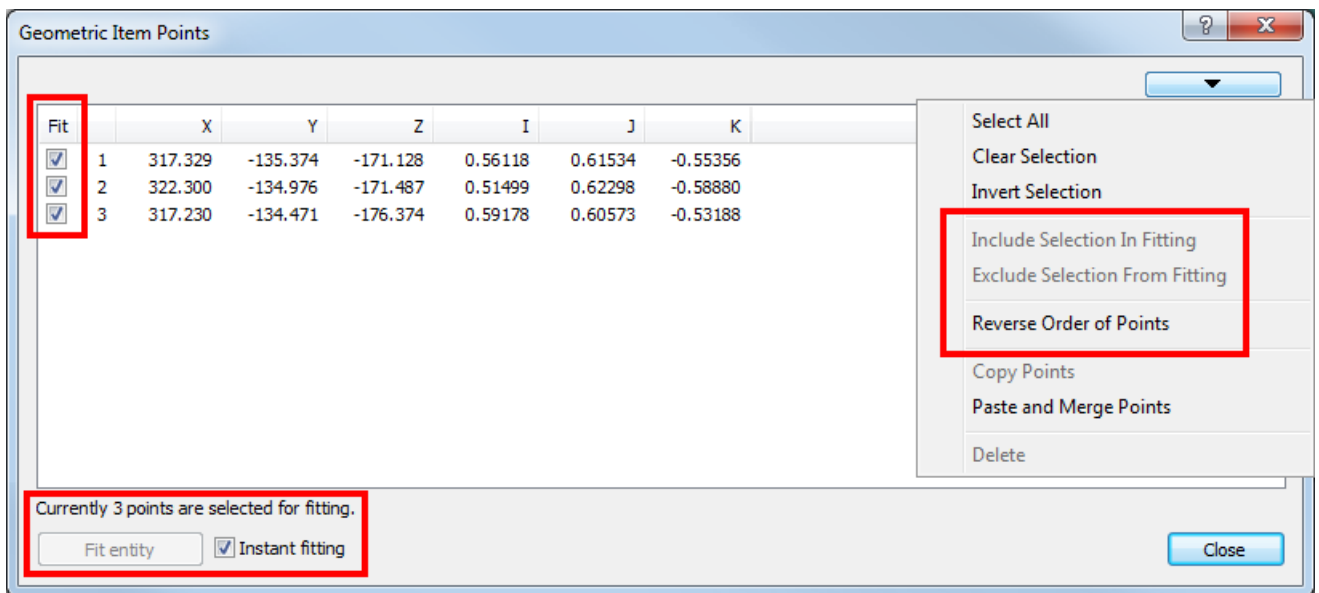
Geometric item points

PowerInspect 2018 has the following improvements to geometric item points:

- Measured points for Single Probed Point items (see page 25)
- Reversing the order of points (see page 25)

Single Probed Point fitting options

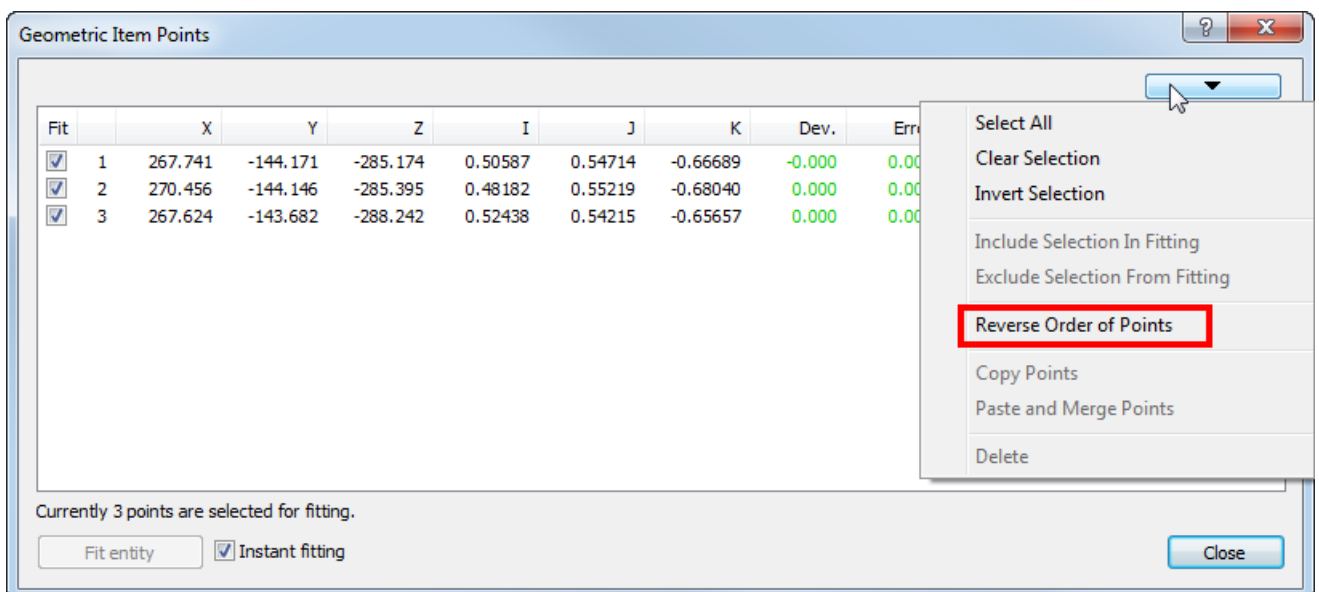
Fitting options are now available in the **Geometric Item Points** dialog for the Single Probed Point item:



You can paste multiple points from the clipboard into this dialog.

Reversing the order of points

Use the **Reverse Order of Points** option in the context menu of the **Geometric Item Points** dialog to reverse the order in which the points are sent to the geometric fitter.



*This option is available only if no sorting is applied. Click the **Fit** column title to clear sorting.*

Digitised curves

PowerInspect 2018 has the following improvements to digitised curves:

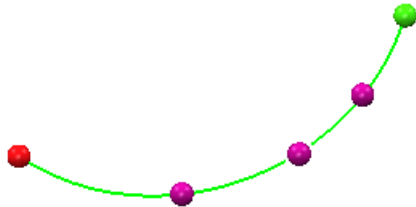
- Polylines (see page 28)

Polylines

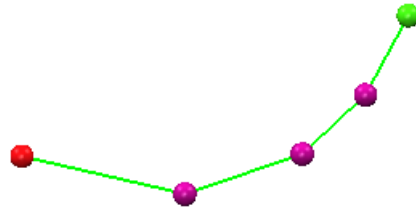
You can now create Digitised Curve items as polylines.

For example:

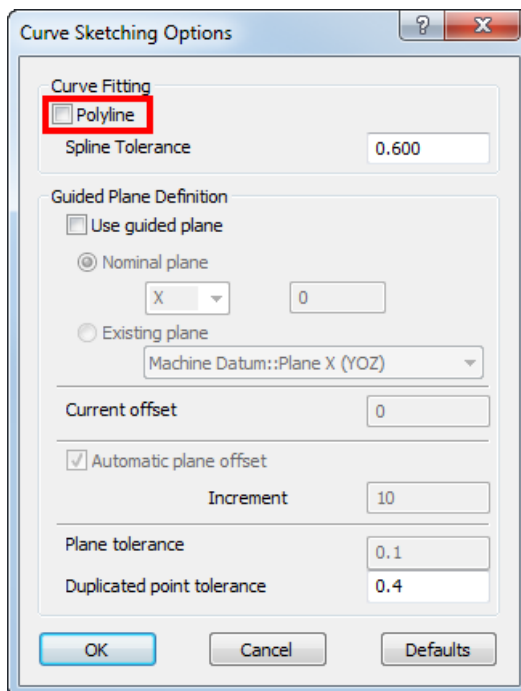
Spline curve:



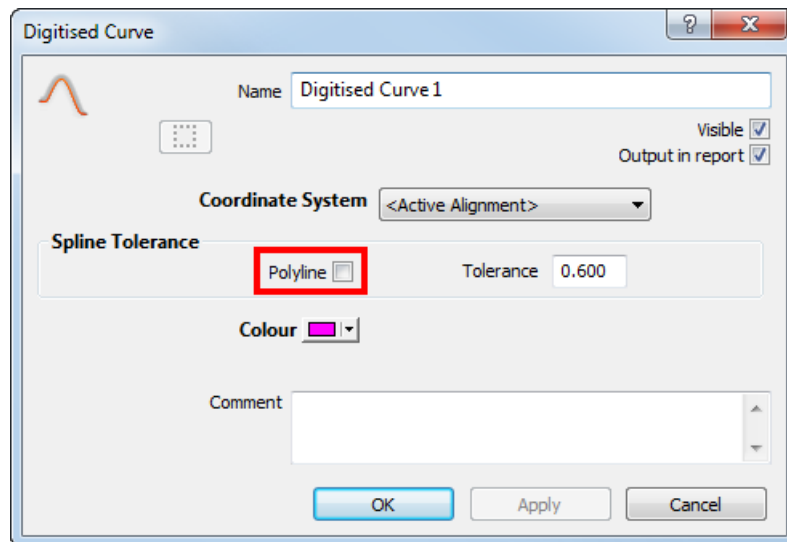
Polyline:



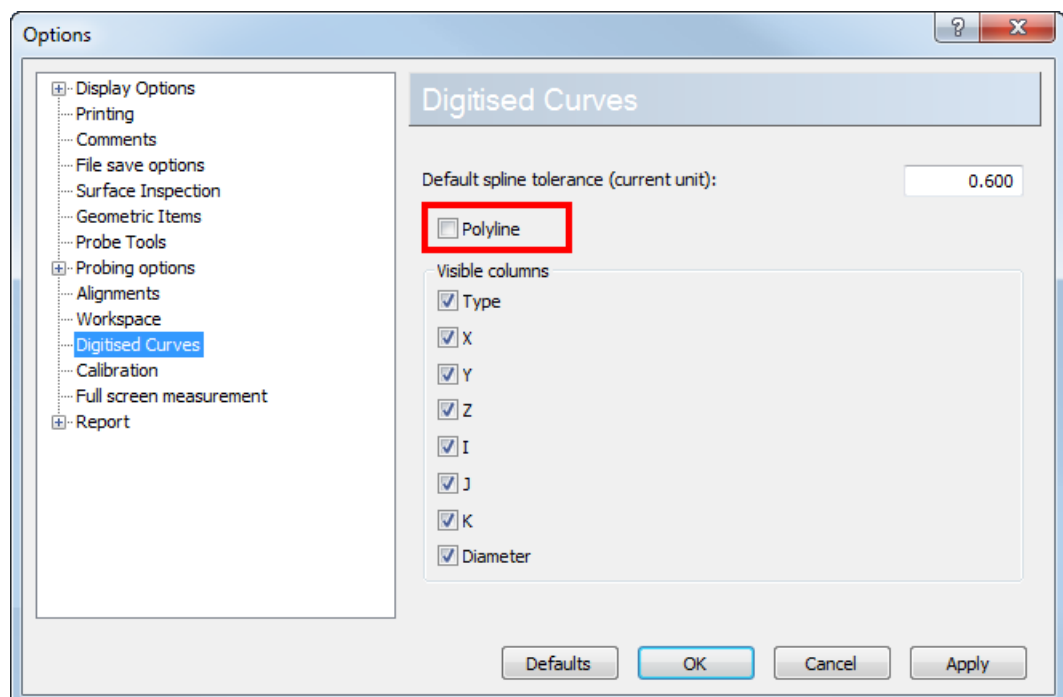
To create a Digitised Curve item as a polyline, in the **Digitised Curve Options** dialog, select the **Polyline** check box.



To change an existing spline curve to a polyline, select the **Polyline** check box in the **Digitised Curve** dialog:



To create all digitised curves as polylines by default, select the **Polyline** check box on the **Digitised Curves** page of the **Options** dialog:



If a digitised curve is a polyline, the **Info** tab displays **Polyline** in the **Value** column for the **Spline Tolerance** parameter:

Digitised Curve 1 (Digitised Curve)

Parameters

Name	Value
Spline Tolerance	Polyline
Colour	#FF00FF

Point-cloud features

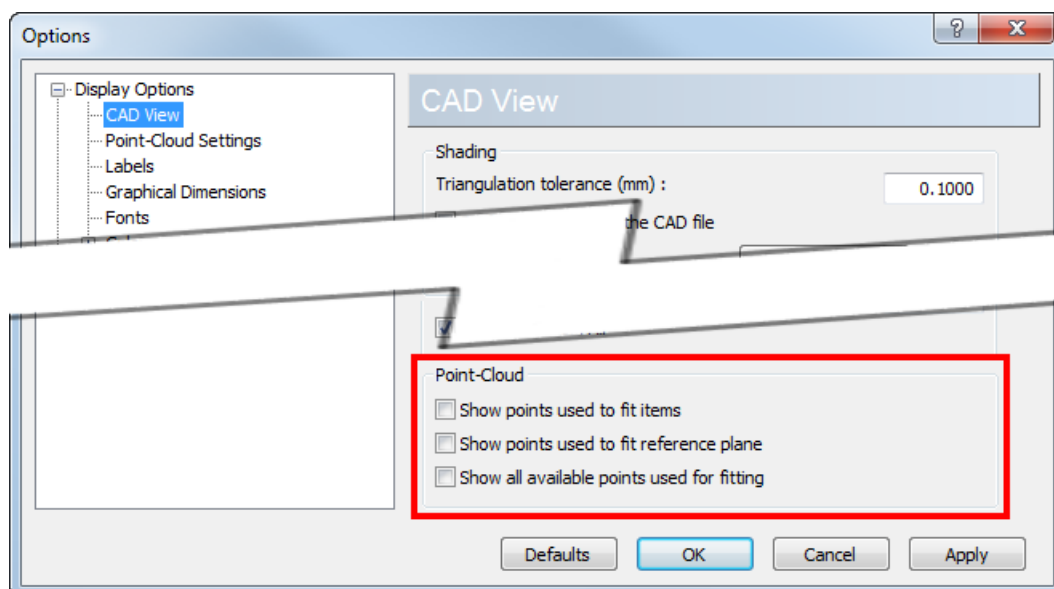
PowerInspect 2018 has the following improvements to point-cloud features:

- Highlighted point-cloud points used for fitting (see page 31)
- Paste as Probed Ellipse (see page 32)

Point-cloud points used for fitting

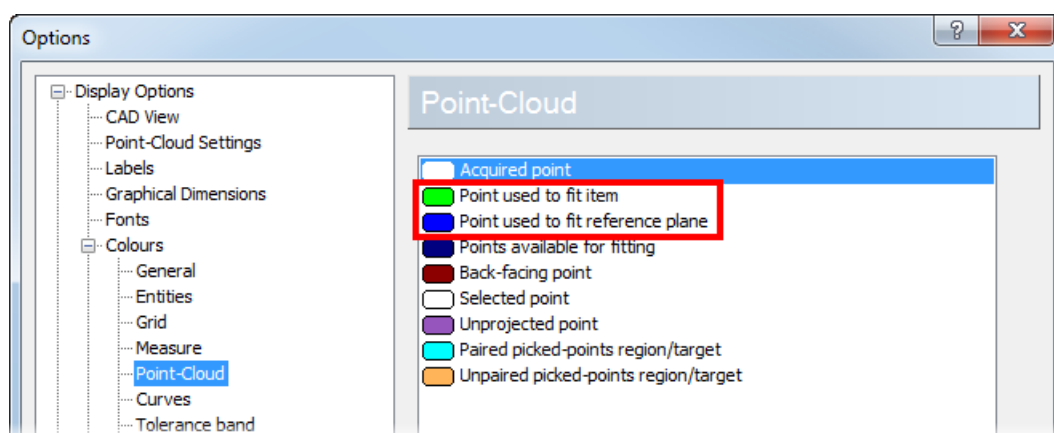
The point-cloud points that are used to fit an item are now highlighted in a different colour.

To control the display of fitting points, use the **Point-Cloud** options in the **Display Options > CAD View** page of the **Options** dialog:



- Show points used to fit items
- Show points used to fit reference plane
- Show all available points used for fitting

To set the colour of these points, use the new options on the **Display Options > Colours > Point-Cloud** page of the **Options** dialog:



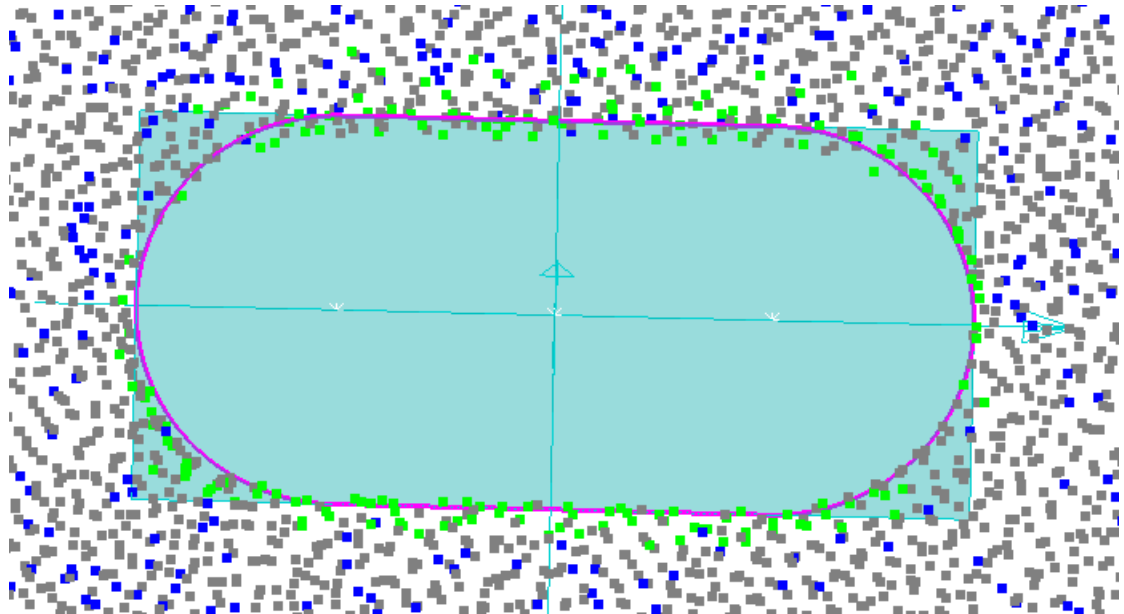
- Point used to fit item
- Point used to fit reference plane



*The **Acquired scanline point** colour is renamed to **Points available for fitting**.*

This example shows a point-cloud slot, with the following points highlighted:

- Points used to fit the point-cloud slot are shown in green.
- Points used to fit the reference plane for the 2D feature are shown in blue.
- Points available for fitting are shown here in grey.



Paste as Probed Ellipse

You can now paste copied point-cloud points as a probed ellipse.

To do this, select Point-Cloud tab > Edit panel > Paste as New Probed > Ellipse.

It works in a similar way to the other options in the same menu.

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